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AUTHOR	Schauerman, Sam; And Others
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ABSTRACT

One of the major tenets of Total Quality Management (TQM) is that organizations need to adopt a strong customer focus. At El Camino College (ECC) in Torrance, California, a matrix was developed to identify and describe ECC's direct and indirect internal and external customers. ECC then applied Quality Function Deployment (QFD), a strategic tool that allows an organization to capture the customer's quality requirements and translate them into organizational language. Once customers' needs and priorities have been surveyed, these priorities are quantified, and a matrix correlates customer priorities to internal functions or processes. To identify and quantify ECC's customers' needs, three focus groups were convened in February 1993, with representation from ECC's major constituents: students, faculty and staff, community and business leaders, and leaders from feeder high schools and from four-year institutions receiving ECC students. At the same time, a "Systems Team" of ECC management, faculty, staff, and students developed a matrix of all functions and systems within the college. Utilizing the weighted needs identified in the customer focus groups, the Systems Team matched constituent needs to college functions, producing separate matrices for each constituent group. Results of the QFD effort identified the following four functions to be addressed to improve the satisfaction of customer needs: Teaching and Learning, Learning Support, Human Resource Development, and Institutional Leadership. Other functions, such as student growth outside the classroom, research, financial services, and facilities management, also need to be addressed but with somewhat less priority. Detailed matrices and a 31-item bibliography are included. (PAA)

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Listening to the Voice of the Customer

by
Sam Schauerman, Superintendent/President
Donna Manno, Coordinator of Staff Development
and
Burt Peachy, Associate Dean, Organizational Planning
El Camino College
Torrance, California

As Presented to the
CCBIA/League For Innovation in Community Colleges Conference
February, 1993

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B. Peachy

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This article explains the concept of "Quality Function Deployment," developed by Professor Yoji Akao in 1978, and how it can be utilized to center your institutional improvement efforts on customer needs. In addition, the article describes how El Camino College is using this process to match constituent needs to college functions as part of the institutional planning process.

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Introduction

Within the last decade major industries, service organizations and educational institutions are implementing the concepts and practices of Total Quality Management to improve the quality of the goods and services they produce. One of the major tenets within the principles of Total Quality Management/Continuous Quality Improvement is the need for organizations to adopt a strong customer focus as one of their major initiatives in the transformation of their organizational culture towards quality. It is surprising to us in our quality consulting that many organizations do not know who their customers are! What is equally surprising is that many organizations, once they have identified their customers, lack strategies to survey customer needs on an ongoing basis and are frustrated in making organizational improvements that truly address customer requirements. The initiatives and tools discussed in this session will expose the reader to a continuous improvement strategy called "Quality Function Deployment" and its application

within an higher educational setting.

Customer Stories

Everyone has good and bad customer "stories." Most of us have experienced the thrill of superior service and the disappointment and frustration when a service fails to meet our expectations. Sometimes failure to address customer needs can be costly! Take, for example, the frustration a customer experienced at his local bank that, unwittingly, failed to validate parking passes. It seems that this customer went to his bank and asked the teller to validate the pass. He was told that the bank only validated passes when there is a transaction. The customer then asked to see the branch manager and was told, once again by the manager, it was the "policy" of the bank to validate passes only when a customer made a transaction. The bank was unwilling to modify the rule even though this man was a good customer. At this point the customer went on the attack. The gentleman then went to the teller and withdrew one million dollars from his account! He told the branch manager that, if the bank's "policy" was not changed by the next day, he would return and withdraw another million dollars. The bank was unable to respond to change that quickly and the customer withdrew his second million. Here was a case where the bank cared more about transactions than the customer.

Good experiences help you to maintain your customer base. More importantly, they build long-term trust and credibility. Another fact we have discovered is that "good" customer experiences usually require the empowerment of front-line employees to make on-the-spot decisions to turn around a potentially disastrous experience. Take, for example, the person who signed up for

an extended telephone service with one of the nation's well known carriers and who discovered three months later that she was receiving the wrong service at a higher price! When she called the phone company she was already on the attack. If the service representative who answered the call was unable to make instant adjustments, there was a possibility that this customer would take her business elsewhere. But the representative was empowered to make corrections during the transaction: not only was the service changed, the representative reimbursed the customer for the 3-months of incorrect service and the original installation fee! The customer's needs were not only met but exceeded. This level of customer "focus" helps organizations to build that long-term trust and credibility so necessary in our competitive environment.

How many times have you been *thrilled* by a service? Something was added that you didn't expect or never thought you needed. The dry cleaners "story" is such a good example. A friend moved into a new neighborhood and found a new dry cleaners that would do dress shirts for $.95 and gave a ten percent discount on dry cleaning. This seemed to be a good buy so the friend began giving business to this dry cleaner. Something unexpected began to happen. Dry cleaning and laundry would come back with broken buttons and even small tears. He brought this to the attention of the manager and, luckily, buttons and tears were repaired from that point on. But his trust in that dry cleaner was never the same. One day he noticed an advertisement in a local paper for a rival cleaner who charged $.90 for shirts and gave a fifteen percent discount on dry cleaning. Our friend changed dry cleaners within the week. He was happy with the savings and the cleaners took special care to make minor repairs. This went on for several months. One night at a neighborhood party, our friend discovered that his next door neighbor

went to a cleaners that charged $.85 for dress shirts, fifteen percent discount on dry cleaning, gave an additional five cents off per shirt when accompanied by dry cleaning, picked up and delivered the laundry and billed the customer once a month for the service. Our friend immediately changed cleaners because the service they offered thrilled him and added components he never knew he needed! Most important, this new level of service became his new standard by which he judged all others; it was the benchmark that other cleaners must be measured against in this customer's eyes.

Retaining Your Customers

The importance of focusing on customers was found in a study conducted by Technical Assistance Programs. They found for each customer complaint that you receive there are twenty-six additional customers that have a complaint; of that twenty-six, six customers consider the complaint to be a serious problem. Additionally, within your customer base, ninety-six percent are non-complainers; only four percent complain. If the complaint is resolved, fifty-four percent (54%) return, sixteen percent (16%) may return, and thirty percent (30%) don't return. If the complaint is resolved quickly, ninety-five percent (95%) return and only five percent (5%) don't return.

Telling others about poor service is a common pastime; we have all indulged in it. According to **the same study** the average run-of-the-mill customer who had a problem tells 9-10 other people; thirteen percent (13%) of those customers tell more than 20 people; and customers who have complaints resolved satisfactorily tell only 5 people.

Customer Focus

A customer is someone who receives your product or service; they are people whose quality requirements you must satisfy in order to succeed. To understand your customer's quality requirements you must establish and maintain feedback mechanisms: on-site surveys; telephone surveys; focus group meetings; etc. Maintaining a consistent relationship with your customers is paramount since customer needs change over time; unless you are vigilant, your customers' needs may outdistance your capabilities. Our dry cleaning friend is an example of this phenomenon. Secondly, your customer's needs must be communicated in their language. It is up to you to translate their needs into your institution's language, functions and processes; we will outline a successful strategy later in this paper. Thirdly, you will always have both internal and external customers. People within your organization may be receivers of products or services rendered by others.

At El Camino College we have developed a matrix that identifies and describes our internal and external customers.

CUSTOMERS		
	INTERNAL Those who work IN the college System	**EXTERNAL** Those who are affected, but are OUTSIDE the college system
DIRECT Those who use the college's services.	**Students** **Next Teachers**	**Community** **Employers** **4-Yr Colleges**

INDIRECT Those who need someone else to use the college services.	**Administration Office** **Board of Trustees**	**Parents** **Taxpayers**	

Quality Function Deployment - Translating the Customer's Voice into Organizational Language

Devised by Japan's Professor Yoji Akao of Tamagawa University in 1978, Quality Function Deployment has been winning adherents since being transplanted to the U.S. in the late 1980's. QFD is a strategic tool that allows an organization to capture the customer's quality requirements and to translate those requirements into organizational language. QFD facilitates the analysis of product and service quality characteristics, costs, reliability etc. and to use these characteristics to plan internal improvements to processes that produce the product or service. It also allows an organization to prioritize its process improvements and to systematically develop a plan for improvement.

QFD first begins with surveying a customer base to define their needs and their priorities. Once these priorities have been quantified, the QFD process correlates customer priorities to internal functions or processes. By matching customer needs with internal processes, employees then have a "map" of their system and can identify which processes need to be improved to meet a customers quality requirements. A simple matrix is used to visually describe this process which then can pinpoint where improvements need to be addressed and in which order.

To further describe the QFD process, let us look at a recent application of QFD at El Camino College to the institution's planning process.

Quality Function Deployment and El Camino College's Planning Process

Step One: Gathering Customer Information

In February, 1993 the President of El Camino College convened three separate focus groups representing our major constituents: students; faculty and staff; community and business leaders; and leaders from our high school feeder schools and the major 4-year institutions who receive our students. These three separate groups were asked the same question: "From your perspective what needs do you have that El Camino College must fulfill in its function as an educational institution?" Through brainstorming, synthesis of ideas and weighted voting, the following needs for each group emerged:

Constituent Focus Group	Weighted Needs (10 = high; 1= low)
Students	Quality of Education (10) Access to Student Services (9) Affordable Fees (9) Affordable Textbooks (9) Fiscal Accountability -Manage Funds Wisely (9) College Fundraising Efforts (8) Multi-Cultural Curriculum & Governance (8) Access to Counseling Services (8) Increased Financial Aid to Students (8) Improved Campus Communications/Student Input (8) Maintain Good Employee Salaries (7) Expand Student Recruitment Efforts (7) Upgrade Facilities (7) Greater Student Access to Facilities (7) Expand Recycling Effort and Communication (6)

Constituent Focus Group	Weighted Needs (10 = high; 1= low)
Faculty/Staff	Quality of Instruction (10) Salaries and Benefits (9) College Morale (9) Student Access to Services (9) Diversity (9) Campus Safety (8) Long Term Planning (8) Improved Communication Throughout the College (8) Improved, User-Friendly Phone System (7) Collegiality (6) Improved Support Systems (6) Upgraded Classrooms and Offices (6) Staff Development (6) Upgraded Equipment and Computers (6) Computer Technology for Faculty, Staff and Students (6) Clean Facilities Throughout the Campus (6) Available and Free Parking (3)
Community Leadership **Business Leadership** **K-12 Leadership** **4-Year Institutions**	Teaching Improvement (10) Institutional Stability (10) Secure Stable Funding Sources (9) Lifelong Learning Opportunities (9) Transfer Education (9) Vocational Education (9) Cultural Diversity (8) Business/Education Partnerships (8) Ongoing Institutional Planning (7) Computer Training For All Students (6) Interpersonal Skills For All Students (6) Community Resource and Education (6) Focus on Global and International Issues (5) Nurture Alumni Involvement (5) Maintain and Expand Facilities (4)

Each of the weighted categories were accompanied by a narrative section that focused on specific suggestions and/or problems as perceived by members of each focus group. This information was developed into a summary document for use by college personnel; the summary was also returned to each focus group for their information.

Step Two - "Mapping the College's Systems"

At the same time the focus groups were meeting, a representative group of management, faculty, staff and students were formed as a "Systems Team" whose task was to develop a matrix of all

functions and units or "systems" within the college. From the initial meeting it was clear that the membership had differing levels of understanding about what functions El Camino College performed. As a result of this lack of common perception, it was decided that each member of the team would research college functions by talking with others and, when re-convened as a group, would collate this information into an El Camino College Systems and Functions "Map." The result of this process was following grid:

El Camino College
Institutional Systems and Functions
(3/24/93)

Teaching & Learning	Learning Support	Student Growth Outside the Classroom
Course Development	(Adult ReEntry)	Counseling
Developing Student Outcomes	(Foreign Student Program)	Adult ReEntry
Honors Program	Articulation	Career
Instruction	Career & Transfer Counseling	Transfer
Instructional Support Staff	Computer Labs	Early Outreach
Planning Instructional Capacity	Counseling	Honors
Program Development	Instructional Services	Matriculation
Scheduling of Courses	ITV	Advising
Specialized Instructional Facilities - Planetarium, Museum, etc.	Learning Center	Assessment
State & Federal Compliances	Library	Counseling
	Matriculation	Follow-up
	Media Services	Orientation
	Special Resource Center	Placement
	Technical Services	Student Affairs
	Testing	Clubs
	Tutoring	Leadership
		Student Government
		Student Equity
		EOP&S
		Project Success
		Puente
		Yes I Can
		Student Mentoring
		Student Retention
		CARE
		Early Alert
		EOP&S
		Project Success
		Puente
		Tutoring
		Yes I Can

El Camino College
Institutional Systems and Functions
(3/24/93)

Leadership	Student Enrollment	Human Resource Development
Accreditation Annual Planning - Short Term Governance Institutional Effectiveness: Planning - Assessment & Evaluation Interaction with Board of Trustees Leadership Development Legal Aspects Program Review Strategic Planning - Long Term	Admissions Articulation Council of High Schools Enrollment Management Evaluations re: Graduation Requirements & Certification Outreach & Recruitment F-1 Visa Records Registration Residency Checks School & College Relations Special Services a. F-1 Students b. Veterans' Services Student Recruitment Testing & Assessment	Affirmative Action Collective Bargaining a. AFT b. CSEA c. Police Evaluating Performance Health Benefits/Insurance Labor Relations Professional Development a. Faculty b. Management c. Staff Recruitment & Hiring Workman's Compensation
Financial Services	**Facilities Management**	**Auxiliary Services**
College: Accounting for: "Auxiliary Services" Student Programs Budget Planning & Development Cashiering Developing Financial Resources Money Management Accounts Payable Managing Investments Payroll Purchasing Contracts Risk Management Student Financial Services: Financial EOP&S Yes I Can Job Placement College Work Study Community Service Learning Program Human Resource Systems (Student) Student Placement Vocational Education Student Financial Aid & Scholarship Services	Campus Security Environmental Safety & Health Facilities Planning Short Term Mid Term Long Term Facilities Maintenance Inventory Management Mailroom New Construction Off-Campus Facilities Operations Warehouse	Athletics Auxiliary Services Board Bookstore Other Books & Supplies Text Sales Campus Police Child Development Center Food Services Cafeteria Catering Snack Bar Marsee Auditorium Parking Facilities Investment Parking Operations Student Health Services Substance Abuse Programs

El Camino College
Institutional Systems and Functions
(3/24/93)

Communications	Research	External Relations
Information Systems Electronic Mail/Telephone Information Training MIS to State Provider of Data Schedule Planning Printing Instruction Newsletters Public Presentations Student Information Catalogue Class Schedule Mandate Data Public & Media Relations Community Newsletter (ECC Report) Newspapers TV & Radio Student Publications Myriad (Humanities) Warrior Life (Student Magazine) Warwhoop (Student Newspaper)	Institutional Research a. 5-Year Plan b. Matriculation c. Program Review Market Research	Alumni Relations Business Partnerships a. Support from Business b. Training Needs for Industry Center for the Arts Chancellor's Office/BOG Community Services a. Civic Center b. Program Contract Education ECC Foundation Economic Development a. California Manufacturing Technology Center b. ECC Quality Institute c. Small Business Center Governmental Relations a. Federal Government b. State Government K-12 Partnerships a. 2 + 2 b. Tech Prep

Step Three - Matching Constituent Needs to College Functions

Utilizing the outputs from the customer focus group summaries, the "Systems Team" began matching constituent needs to college functions. Using correlations (5=high; 3=medium; 1=low; and 0=no correlation) the team looked at each college function and correlated each constituent need to that particular function. Matrices were developed for each constituent group (Students; Faculty/Staff; Community/Business/Academic) and a final summary matrix was produced that combined the needs of all three groups into a synthesized matrix. The team agreed to produce a separate summary matrix for "Education/Instruction" separate from other college support functions since this was the primary function and need addressed by each focus group and, therefore, demanded preeminent attention. The result of this effort follows:

El Camino College
Quality of Education
Function Matrix

	GROUP:	COLLEGE FUNCTIONS											
WEIGHT FACTOR	CONSTITUENT REQUIREMENTS	TEACHING & LEARNING	LERNING SUPPORT	HUMAN RESOURCE DEVL	LEADERSHIP	STUDENT GROWTH	EXTERNAL RELATIONS	RESEARCH	STUDENT ENROLLMENT	FINANCIAL SERVICES	AUXILIARY SERVICES	COMMUNICATIONS	FACILITIES MGMT
10	Current Students: Quality of Education	5	5	5	5	5	3	3	3	3	3	3	3
9	Faculty/Staff: Quality of Instruction	5	5	5	5	5	5	3	3	3	3	1	1
10	Community: Teaching Improvement	5	5	5	5	1	3	3	1	1	0	1	1
	AVERAGE	**5**	**5**	**5**	**5**	**3.7**	**3.7**	**3**	**2.3**	**2.3**	**2**	**1.7**	**1.7**

El Camino College
Constituent Requirement/College Function Matrix
Focus Group Summary

	GROUP:											
WEIGHT FACTOR	CONSTITUENT REQUIREMENTS	LERNING SUPPORT	STUDENT GROWTH	LEADERSHIP	STUDENT ENROLLMENT	HUMAN RESOURCE DEVL	FINANCIAL SERVICES	FACILITIES MANAGEMENT	AUXILIARRY SERVICES	COMMUNICATIONS	RESEARCH	EXTERNAL RELATIONS
	Students: Weighted Total	269	293	339	215	92	333	101	273	183	113	273
	Faculty/Staff: Weighted Total	236	228	259	196	325	292	216	216	332	112	175
	Community: Weighted Total	294	297	355	295	145	271	115	177	239	175	383
	Average	**266**	**272**	**317**	**235**	**187**	**298**	**144**	**222**	**251**	**133**	**277**
	Index Number	**2.00**	**2.05**	**2.38**	**1.77**	**1.41**	**2.24**	**1.08**	**1.67**	**1.89**	**1.00**	**2.08**

Summary of Results

The following represents a reordering of college functions according to the strength of the correlation and indexing to constituent needs:

College Function	Correlation to Constituent Need
Teaching and Learning	5
Learning Support	5
Human Resource Development	5
Leadership	5
Student Growth Outside the Classroom	3.7
External Relations	3.7
Research	3
Student Enrollment	2.3
Financial Services	2.3
Auxiliary Services	2
Communications	1.7
Facilities Management	1.7

From this summary it can be noted that four major college functions have the highest correlation with constituent needs. This represents the results of this particular focus group activity and may be subject to revision every time you convene focus groups. However, armed with this information the institution is able to focus on which processes and systems should be initially addressed for improvement to satisfy constituent/customer needs, namely Teaching and Learning, Learning Support, Human Resource Development and Institutional Leadership. Other functions would also need to be addressed but with somewhat less priority.

The Importance of QFD in Planning Efforts That Address Customers Needs

How does QFD relate to the process improvement practices of Total Quality Management? Quality Function Deployment can be used as the "engine" that drives all planning and process improvement efforts. The

information gathered and systematically analyzed in this way can assist the institution's leadership to plan their visioning, goals and objectives and annual strategies, visioning and strategies around the needs of constituents rather than second guessing what should be improved. Through this process, a major paradigm shift can be affected within the campus leadership to turn from an inward planning process to one that focuses on information gathering from sources outside our functions and processes and to rate that information against our processes and functions. In addition, the summary information on college functions provided above can assist the leadership in prioritizing its planning efforts and focusing improvements on the most important functions that address constituent needs.

Stages of QFD and Improvement Activity:

The following is a summary of the stages of activity to demonstrate where the Quality Function Deployment activity is properly placed:

* A survey is administered to constituents/customers to ascertain their needs;
* Employees "map" the processes and functions in their system;
* The employees analyze customer priorities and quality requirements;
* Quality Function Deployment Matrix Developed
* The Team prepares a process improvement plan by addressing priority functions;
* When completed, the team returns to the QFD Matrix to identify next process to improve;

OR

* The Team "Benchmarks" the best practices of a competitor;

OR

* Re-survey the customer to see if their quality requirements have changed.

Summary: Using Quality Function Deployment as an Institutional Planning Tool

At El Camino College, we are currently using Quality Function Deployment to analyze customer needs and to establish critical breakthrough processes that will be addressed by the entire institution on an annual basis. This process is beginning to dramatically alter our traditional strategic planning process and is a powerful tool to align the entire institution around achievable, measurable goals. In addition we are fostering individual QFD efforts at each worksite to develop unit goals around constituent needs, further driving the TQM transformation

efforts toward our vision of ongoing, continuous process improvements by every employee.

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